

Torr. & Gray, l. c. 76 (1838).— Rocky or ledgy banks, northern Maine to the Rocky mountains of British Columbia, south to Nova Scotia, eastern Massachusetts, Rhode Island, southern Connecticut, central and western New York, Ottawa Co., Ohio, Kane Co., Illinois, and along the mountains to Colorado, Utah, and Oregon, and California (?).

Var. **connexa**, n. comb. Stout: the pods 3 to 3.3 mm. broad.— *A. connexa*, Greene, Pittonia, iv. (1900) 197.— Mountains of Colorado and Washington, and at Rivière du Loup, Quebec. Passing gradually to the species.

* * Basal leaves pubescent with mostly 3-forked stellate hairs: pods wide-spreading or loosely ascending.

A. BRACHYCARPA, Britton. Similar to *A. Drummondii*: radical leaves densely pubescent; cauline glabrous: flower-pedicels soon widely spreading or even pendulous: pods 1.7 to 9 cm. long, 1 to 2 mm. broad, mostly divergent, rarely even somewhat reflexed.— Mem. Torr. Cl. v. (1894) 174, Ill. Fl., l. c. and Man. l. c., in part. *A. Drummondii* and var. *brachycarpa*, Gray, Man. ed. 5, 69, in part. *A. confinis*, Watson, Proc. Am. Acad. xxii. (1887) 466, in part, and (including var. *brachycarpa*) Syn. Fl. l. c., in part; Watson & Coulter, l. c., in part. *A. divaricarpa*, A. Nelson, Bot. Gaz. xxx. (1900) 193. *Turritis brachycarpa*, Torr. & Gray, Fl. i. 79 (1838).— Sandy soil of open woods, banks and shores, more rarely on rocky banks, from Saguenay Co., Quebec, to Saskatchewan and Assiniboia, south to Restigouche Co., New Brunswick, Lake Memphremagog, Quebec, Lake Champlain, Vermont and New York, Jefferson Co., New York, the Great Lakes, Lee Co., Illinois, and along the mountains to Colorado.

GRAY HERBARIUM.

NOTES ON ALGAE,— VI.

F. S. COLLINS.

GRACILARIA CONFEROIDES (L.) Grev. It has been the practice for many years to assign all specimens of *Gracilaria* from the New England coast to *G. multipartita* (Clem.) J. Ag., the broader forms as the type, the slenderer as var. *angustissima* Harv. Just outside of our limits, politically, Farlow¹ doubtfully reports another species.

¹ Report of the U. S. Commissioner of Fishes and Fisheries for 1871 & 1872, p. 289, 1873.

"In September, 1870, I found large masses of a *Gracilaria*, which I picked up by the armful at East Marion, Long Island. I think likely it was *G. confervoides* Grev., but have misplaced my specimens." In N. E. Marine Algae, p. 164 is a similar note, giving the locality as Orient. Other than this, there appears to be no record of anything but *G. multipartita* north of the Carolinas.

It is by no means easy to tell from a herbarium specimen of *Gracilaria* whether the living plant was flat, compressed or terete; and though the writer had seen several specimens from Buzzard's Bay that in every way resembled the European *G. confervoides*, he did not venture to consider them identical, as he could not be certain that the flattening shown in all the specimens in question was due to their pressing. On Sept. 14, 1902, however, he found on a muddy shore at Mattapoissett, Mass., quantities of *Gracilaria*, in dense rounded tufts, the fronds in every part terete with no trace of flattening; the branches long, attenuate, acute. There was no indication of the flattening at the axils, or of the palmatifid tips, characteristic of *G. multipartita* var. *angustissima*, and it would appear to be safe to add *G. confervoides* to the list of New England algae. The specimens have been distributed under that name as No. 1041, Phycotheca Boreali-Americana.

ACTINOCOCCUS PELTAEFORMIS Schmitz. This plant was formerly considered as the tetrasporic fruit of *Gymnogongrus Norvegicus* (Turn.) J. Ag.¹ but is now known to be a parasite on the latter, in the same way as *A. aggregatus* Schmitz is on *Gymnogongrus Griffithsiae* (Turn.) Mart. and *A. subcutaneus* (Lyng.) Rosenv. on *Phyllophora Brodiaei* (Turn.) J. Ag. It was found by the writer in July, 1902, at Cutler and at Baker's Island, near Harpswell, both on the Maine coast. It will probably be found wherever the host plant grows.

CODIOLUM PUSILLUM (Lyng.) Foslie. In RHODORA, Vol. III, p. 280, the writer noted the occurrence of this species at Marblehead, Massachusetts, but in a form different from the type, and to which Foslie gave the name forma *Americanum*, distinguished by the clava being nearly or quite as long as the stipe. At Cutler, Maine, in July, 1902, the same species occurred, forming a dense coating on rocks near high water mark, and composed of plants showing all stages from the typical European form to that of the Marblehead plant.

The more one sees of *Codiolum*, the more difficult it is to draw sharp lines; forms can be found strikingly different from each other, but there are also many intermediate forms. The great need to clear up this matter is for some one to study them, in their natural conditions, through a whole season of growth: this might result in giving us reliable distinctions, or might result in uniting all under one name or a few names.

SPIROGYRA DECIMINA var. **triplicata** n. v. In a pool in the old slate quarry near Mystic Avenue, Somerville, Massachusetts, the writer found, May 20, 1902, a *Spirogyra* that does not agree exactly with any description accessible, but resembles *S. decimina* (Müll.) Kütz. so much that it seems best for the present to consider it a variety only. The type has two spirals, but occasionally three; cells two to four times as long as the diameter, which is 35–40 μ ; spores broadly oval to subglobose. In the variety the spirals are uniformly three; the length of the cells varies from one and a quarter to five times the diameter, which is 40–45 μ ; the spores in the shorter cells are nearly globose, in the longer cells cylindrical with rounded ends. The variety has been distributed as No. 960, *Phycotheca Boreali-Americana*.

In *RHODORA*, Vol. IV, p. 177, brief mention was made of the occurrence of *Plectonema Battersii* Gom. near Jonesport, Maine. It has since been found at Harpswell, Maine and Marblehead, Mass., and may naturally be expected anywhere along our northern coast, in the mixture of various minute Cyanophyceae which one so commonly finds in tide pools and under overhanging cliffs. It is nearly related to *P. Golenkinianum* Gom., which occurs in similar localities, but the filaments are somewhat larger, 2–3.5 μ in place of 1.2–2 μ , and the trichomes are pale aeruginous in color instead of roseate. In both the trichomes are somewhat torulose, with articulations one third to one quarter their diameter. While Gomont's description¹ represents the two as branching to the same extent, the American specimens show fewer pseudo-branches in *P. Golenkinianum* than in *P. Battersii*.

MICROCOLEUS TENERRIMUS Gomont, *Monographie des Oscillariées*, p. 93, Pl. XIV, figs. 9–11. The cosmopolitan species *M. chthonoplastes* (Fl. Dan.) Thuret is very common in warm bays, lagoons and marshes, all along our coast; in the Gulf States and in California

¹ Bull. Soc. Bot. de France, Vol. XLVI, pp. 35 & 36.

there has often been found growing with it a second species, *M. tenerimus*. While the two are alike in general characters they are amply distinct by the following: *M. chthonoplastes* has trichomes 2.5–6 μ diam., densely packed in sheaths 20–30 μ wide. *M. tenerimus* has trichomes 1.5–2 μ diam., few in number, in a sheath 10–15 μ wide. It was found in rather small quantity with *M. chthonoplastes* at Southwest Harbor, Mount Desert Island, Maine, by Mr. Isaac Holden, and is to be expected anywhere that the commoner species is found.

XENOCOCCUS KERNERI Hansgirg, Phys. & Alg. Studien, p. 111, Pl. I, 1887. The cells of this species form a denser and more membranous coating to the host plant than do the cells of *X. Schousboei* Thuret, our only species previous to this. Probably as a consequence of this arrangement, the cells are vertically elongated, and may reach a height of 10 μ with a diameter of 4 μ . The species was originally described as growing in fresh water in Bohemia; as No. 685 of Hauck & Richter, Phycotheca Universalis, specimens were distributed, collected in brackish water in East Africa; it was found by the writer growing abundantly on old plants of *Cladophora*, in a high tide pool at Cohasset, Mass., Oct. 12, 1901, and was distributed as No. 952, Phycotheca Boreali-Americana.

MALDEN, MASSACHUSETTS.

CHARLES JAMES SPRAGUE died August 5th at his summer home in Hingham in his eighty-first year. Mr. Sprague was born in Boston January 16th, 1823, and was a banker by profession, although he retired from active business many years ago, devoting himself thereafter to literary and botanical pursuits. He was a poet and musician of rare taste. For some years he was the botanical curator of the Boston Society of Natural History. He was an intimate friend of the late Dr. Asa Gray, to whose collections he contributed many valuable specimens and critical notes. Like the late Edwin Faxon, Mr. Sprague was more anxious to aid others in their investigations than to publish the results of his own patient and critical observations. Realizing the importance of specialization he directed his attention chiefly to the lichens. His valuable collection representing this difficult group of plants has for some time been property of the Boston Society of Natural History. One of Mr. Sprague's most important botanical papers was his treatment of the lichens contributed to Mr. John Robinson's Flora of Essex County, Massachusetts.